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**From:** catherine houska [cmhouska@outlook.com]  
**Sent:** 12/14/2018 9:45:22 PM  
**To:** teresa.clark@ensoplastics.com; Halloran, Priscilla [Halloran.Priscilla@epa.gov]; Tim Earl [tearl@gbhint.com]; 'Mark Mistry' [mmistry@nickelinstitute.org]  
**CC:** Kinn, Alison [Kinn.Alison@epa.gov]; Ganguli, Swarupa [Ganguli.Swarupa@epa.gov]; 'Englert, Mark' [menglert@usg.com]; 'Carrie Claytor' [carrie.claytor@copperalliance.us]; 'Andrea Vaccari' [andrea.vaccari@copperalliance.org]; 'Maribeth Rizzuto' [msrizzuto@aol.com]; 'Brandie Sebastian' [bsebastian@steel.org]; 'Emily Lorenz' [elorenz@pci.org]; 'Currence Dan' [dcurrence@plasticpipe.org]; 'Liles, Terry' [Terry.Liles@huber.com]  
**Subject:** RE: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)  
**Attachments:** E6021 minutes.PDF

Hello Everyone

First, I want to point out that it was agreed at the Recycling in LCA TG that we would refer users to the E60 General Terminology standard E2114 and ISO 14040 for all general definitions. This is the purpose of both standards. Only those terms that need to be defined in this guide will be included per the TG discussion. That would be a term not defined elsewhere, which we would ballot and potentially transfer to E2114 at a later date if there is general application, or a highly specialized definition of a term, which needs to be defined for the purposes of the standard.

The draft will be modified accordingly and any duplicate terms removed.

Recycle, energy recovery and other terms related to this topic are already defined by E2114. We have worked to create 1 central E60 terminology standard to avoid the extreme redundancy that has existed and to ensure consistency. Terry's minutes are attached and include the discussion about the balloted definition for energy recovery. We also discussed recycling but I defer to Terry for a summary of the new work that was discussed.

As a strong advocate of a terminology consistency within any ASTM committee, I encourage talking to Terry about participation in the General Terminology committee. E60.80 does not have a separate terminology standard.

For reference, I have provided some of the terms & definitions from E2114.

**energy recovery, *n***—obtaining usable energy by consuming waste through a variety of processes.

**life-cycle assessment, LCA, *n***—a method of evaluating a product by reviewing the ecological impact over the life of the product.

**DISCUSSION**—At each stage, the product and its components are evaluated based upon materials and energy consumed, and the pollution and waste produced. Life stages include extraction of raw materials, processing and fabrication, transportation, installation, use and maintenance, and reuse/recycling/disposal. ISO 14040 defines LCA as the compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle.

**recovered materials, *n***—waste material and by-products which have been recovered or diverted from the waste stream, but such term does not include those materials and by-products generated from, and commonly used within, an original manufacturer process.

**recycle, *v***—recovering or reprocessing materials for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.

**recycled content products, *n***—products that contain pre-consumer or post-consumer materials as all or part of their feedstock.

**waste to energy, *n***—the process of producing useful energy, such as electricity or heat, from waste.

**DISCUSSION**—Some examples of energy conversion processes include combustion, gasification, and pyrolyzation. Examples of waste include, but are not limited to: animal waste or animal byproducts, household waste, and construction waste.

Have a wonderful day!

Catherine Houska  
*Architectural & Structural Metals Consulting*



**Catherine Houska Consulting LLC**

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**Ex. 6 Personal Privacy (PP)**

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**From:** [teresa.clark@ensoplastics.com](mailto:teresa.clark@ensoplastics.com) <[teresa.clark@ensoplastics.com](mailto:teresa.clark@ensoplastics.com)>

**Sent:** Friday, December 14, 2018 1:54:06 PM

**To:** Halloran, Priscilla; Tim Earl; 'catherine houska'; 'Mark Mistry'

**Cc:** Kinn, Alison; Ganguli, Swarupa; 'Englert, Mark'; 'Carrie Claytor'; 'Andrea Vaccari'; 'Maribeth Rizzuto'; 'Brandie Sebastian'; 'Emily Lorenz'; 'Currence Dan'; 'Liles, Terry'

**Subject:** RE: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

We may find it difficult to delineate some of these terms and I see it leading down a rabbit hole..... For instance:

- If used oil is converted into biodiesel, it is not actually being converted into energy. It is being converted into a more useful fuel, but technically the oil itself is already a fuel. So one could easily argue that you are recycling the product into a similar type product. Basically they are recycling fuel that was used for another purpose into fuel intended for combustion.
- There is no restriction on the purpose of the second life product in other materials when defining recycling, for instance, a company can take reclaimed paper and turn it into a fire log which would still be considered recycling of the paper. Or, one could take tire rubber and grind it to be used on asphalt applications (which is using it for a completely different purpose than the original product). The common criteria for the term recycled is in creating a second life for something that would have otherwise been wasted. It is a single cycle requirement, so this would include recycling of oil along with many other materials and chemicals.
- If we remove oil, we must also then remove almost any chemical recycling processes as the uses of base chemicals is almost unlimited (if I were to take recovered polyethylene plastic and chemically break it down to ethylene, it could then be sold to a variety of manufacturers making different products (ethylene glycol, ethanol, polyethylene, etc). If it is made into ethanol, then it could be used as a fuel, or it could be used as the base to create polyethylene. By the proposed delineation of energy vs recycling, the conversion of polyethylene into ethylene would be recycling, but if one was to process it into ethanol, then it would no longer be a recycled product should it be sold as a fuel, but it would be if it was sold as a raw material for any other application. It becomes dangerous and very complex when we begin putting limitations on the second life of the product.
- If we decide that the term "recycling" is going to be limited to the reprocessing of materials to manufacture those materials into new products, then any composting must be removed from the definition of recycling. Composting does not return the waste material in a raw material that is then remanufactured into new products.
- Energy companies would argue that energy is a product just as physical materials are products. For any manufacturing process there is a requirement of raw materials and energy, so embodied in any finished good is the material it is made of and the energy utilized to create it. If we are to recover either the energy or the material there is potential for benefit and both could arguably be recycling.
- Europe, Florida and many other regions consider the conversion of waste into energy as recycling. There is not consistency between the EPA definition and other government definitions. Perhaps we can find a different way that can encompass both approaches? Perhaps encompass all options for second life as "recycling" but define out different forms of recycling if needed, such as 'chemical recycling', 'mechanical recycling' and such....

Thanks

Teresa Clark

Ex. 6 Personal Privacy (PP)

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**From:** Halloran, Priscilla <Halloran.Priscilla@epa.gov>  
**Sent:** Friday, December 14, 2018 10:02 AM  
**To:** Tim Earl <tearl@gbhint.com>; 'catherine houska' <cmhouska@outlook.com>; 'Mark Mistry' <mmistry@nickelinstitute.org>  
**Cc:** Kinn, Alison <Kinn.Alison@epa.gov>; Ganguli, Swarupa <Ganguli.Swarupa@epa.gov>; 'Englert, Mark' <menglert@usg.com>; 'Carrie Claytor' <carrie.claytor@copperalliance.us>; 'Andrea Vaccari' <andrea.vaccari@copperalliance.org>; teresa.clark@ensoplastics.com; 'Maribeth Rizzuto' <msrizzuto@aol.com>; 'Brandie Sebastian' <bsebastian@steel.org>; 'Emily Lorenz' <elorenz@pci.org>; 'Currence Dan' <dcurrence@plasticpipe.org>; 'Liles, Terry' <Terry.Liles@huber.com>  
**Subject:** RE: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

That would be most helpful, thanks again!

Priscilla Halloran  
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**From:** Tim Earl <tearl@gbhint.com>  
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**To:** Halloran, Priscilla <Halloran.Priscilla@epa.gov>; 'catherine houska' <cmhouska@outlook.com>; 'Mark Mistry' <mmistry@nickelinstitute.org>  
**Cc:** Kinn, Alison <Kinn.Alison@epa.gov>; Ganguli, Swarupa <Ganguli.Swarupa@epa.gov>; 'Englert, Mark' <menglert@usg.com>; 'Carrie Claytor' <carrie.claytor@copperalliance.us>; 'Andrea Vaccari' <andrea.vaccari@copperalliance.org>; teresa.clark@ensoplastics.com; 'Maribeth Rizzuto' <msrizzuto@aol.com>; 'Brandie Sebastian' <bsebastian@steel.org>; 'Emily Lorenz' <elorenz@pci.org>; 'Currence Dan' <dcurrence@plasticpipe.org>; 'Liles, Terry' <Terry.Liles@huber.com>  
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I believe Terry or Catherine is preparing those ballots, so I don't have them.

Hopefully one of them will chime in here.

But the short answer is that the group felt the examples in Note 1 are actually for Waste to Energy, not Energy Recovery.

Regards,

**Tim Earl**  
Director of Fire Test Engineering

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**From:** Halloran, Priscilla <[Halloran.Priscilla@epa.gov](mailto:Halloran.Priscilla@epa.gov)>

**Sent:** Friday, December 14, 2018 11:23 AM

**To:** Tim Earl <[tearl@gbhint.com](mailto:tearl@gbhint.com)>; 'catherine houska' <[cmhouska@outlook.com](mailto:cmhouska@outlook.com)>; 'Mark Mistry' <[mmistry@nickelinstitute.org](mailto:mmistry@nickelinstitute.org)>

**Cc:** Kinn, Alison <[Kinn.Alison@epa.gov](mailto:Kinn.Alison@epa.gov)>; Ganguli, Swarupa <[Ganguli.Swarupa@epa.gov](mailto:Ganguli.Swarupa@epa.gov)>; 'Englert, Mark' <[menglert@usg.com](mailto:menglert@usg.com)>; 'Carrie Claytor' <[carrie.claytor@copperalliance.us](mailto:carrie.claytor@copperalliance.us)>; 'Andrea Vaccari' <[andrea.vaccari@copperalliance.org](mailto:andrea.vaccari@copperalliance.org)>; [teresa.clark@ensoplastics.com](mailto:teresa.clark@ensoplastics.com); 'Maribeth Rizzuto' <[msrizzuto@aol.com](mailto:msrizzuto@aol.com)>; 'Brandie Sebastian' <[bsebastian@steel.org](mailto:bsebastian@steel.org)>; 'Emily Lorenz' <[elorenz@pci.org](mailto:elorenz@pci.org)>; 'Currence Dan' <[dcurrence@plasticpipe.org](mailto:dcurrence@plasticpipe.org)>; 'Liles, Terry' <[Terry.Liles@huber.com](mailto:Terry.Liles@huber.com)>

**Subject:** RE: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

Hi Tim,

Thanks for the followup and will consult internally on your question. I did notice that the last ballot I have is 8-2018 and it has the following definition for energy recovery:

3.1.3 Energy recovery, n – production of useful energy through direct and controlled combustion. Note 1 to entry: Solid-waste incinerators producing hot water, steam or electricity are a common form of energy recovery.

Would it be possible to see the most recent versions you have for energy recovery and waste-to-energy?

Thanks!

Priscilla

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**From:** Tim Earl <[tearl@gbhint.com](mailto:tearl@gbhint.com)>

**Sent:** Friday, December 14, 2018 8:40 AM

**To:** 'catherine houska' <[cmhouska@outlook.com](mailto:cmhouska@outlook.com)>; 'Mark Mistry' <[mmistry@nickelinstitute.org](mailto:mmistry@nickelinstitute.org)>; Halloran, Priscilla <[Halloran.Priscilla@epa.gov](mailto:Halloran.Priscilla@epa.gov)>

**Cc:** Kinn, Alison <[Kinn.Alison@epa.gov](mailto:Kinn.Alison@epa.gov)>; Ganguli, Swarupa <[Ganguli.Swarupa@epa.gov](mailto:Ganguli.Swarupa@epa.gov)>; 'Englert, Mark' <[menglert@usg.com](mailto:menglert@usg.com)>; 'Carrie Claytor' <[carrie.claytor@copperalliance.us](mailto:carrie.claytor@copperalliance.us)>; 'Andrea Vaccari' <[andrea.vaccari@copperalliance.org](mailto:andrea.vaccari@copperalliance.org)>; [teresa.clark@ensoplastics.com](mailto:teresa.clark@ensoplastics.com); 'Maribeth Rizzuto' <[msrizzuto@aol.com](mailto:msrizzuto@aol.com)>; 'Brandie Sebastian' <[bsebastian@steel.org](mailto:bsebastian@steel.org)>; 'Emily Lorenz' <[elorenz@pci.org](mailto:elorenz@pci.org)>; 'Currence Dan' <[dcurrence@plasticpipe.org](mailto:dcurrence@plasticpipe.org)>; 'Liles, Terry' <[Terry.Liles@huber.com](mailto:Terry.Liles@huber.com)>

**Subject:** RE: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

Priscilla,

I just wanted to include some details on the TG discussions from the last meeting. The consensus of the group was that the process you are describing with cooking oils is actually "waste to energy," not energy recovery. Energy recovery, as we defined it in that group, is recovering waste energy from a process and using it for some other purpose.

Catherine or Terry can correct me if I'm wrong, but I believe we'll be balloting those definitions, so I hope EPA will not oppose them. Many people in the meeting argued that it was important to distinguish between those two terms.

Regards,

**Tim Earl**

Director of Fire Test Engineering  
GBH International

Ex. 6 Personal Privacy (PP)

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**From:** catherine houska <cmhouska@outlook.com>

**Sent:** Thursday, December 13, 2018 5:49 PM

**To:** Mark Mistry <mmistry@nickel institute.org>; Halloran, Priscilla <halloran.priscilla@epa.gov>

**Cc:** Kinn, Alison <kinn.alison@epa.gov>; Ganguli, Swarupa <ganguli.swarupa@epa.gov>; Englert, Mark <menglert@usg.com>; Carrie Claytor <carrie.claytor@copperalliance.us>; Andrea Vaccari <andrea.vaccari@copperalliance.org>; teresa.clark@ensoplastics.com; Maribeth Rizzuto <msrizzuto@aol.com>; Brandie Sebastian <bsebastian@steel.org>; Emily Lorenz <elorenz@pci.org>; Tim Earl <tearl@gbhint.com>; Currence Dan <dcurrence@plasticpipe.org>; Liles, Terry <Terry.Liles@huber.com>

**Subject:** Re: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

Dear Priscilla

I have copied in the core members of this task group as well as E60's Chair and Vice Chair and our General Terminology Chair.

Your reaching out to Mark Mistry and I separately from the email chain that Don Scott initiated is appreciated. We value the EPA's input on this and other work items.

I do remember your previous communications. (Everyone please read the email chain below.)

This was part of why the TG initially removed the biodiesel appendix Recycling in LCA and it was a strong consideration in the vote at the meeting to remove it from this ballot. Others have expressed a similar concerns.

Your sharing this again is also very timely given some of the definition discussions that have occurred.

Thank you for resharing.

Catherine Houska  
Architectural & Structural Metals Consulting

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From: Halloran, Priscilla

Sent: Thursday, December 13, 11:56 AM

Subject: FYI - Fw: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

To: Mark Mistry, catherine houska  
Cc: Kinn, Alison, Ganguli, Swarupa

Hi Mark and Catherine,

FYI, not sure if you received this email that was sent over a year ago regarding the definition of recycling and referring to the use of used cooking oils/fats/greases as recycling. This was EPA's response around the definition of recycling in the ASTM standard at that time and how it forms our position on the term "recycling biodiesel." You'll see the use of used cooking oils for fuel falls under our energy recovery definition.

Regards,  
Priscilla

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**From:** Coleman, Cheryl [ <mailto:Coleman.Cheryl@epa.gov> ]  
**Sent:** Friday, October 13, 2017 4:33 PM  
**To:** Don Scott < [DScott@biodiesel.org](mailto:DScott@biodiesel.org) >  
**Cc:** Kinn, Alison < [Kinn.Alison@epa.gov](mailto:Kinn.Alison@epa.gov) >; Vance, Ronald < [Vance.Ronald@epa.gov](mailto:Vance.Ronald@epa.gov) >; Ganguli, Swarupa < [Ganguli.Swarupa@epa.gov](mailto:Ganguli.Swarupa@epa.gov) >  
**Subject:** RE: comments/inquiry from National Biodiesel Board re: Negative on ASTM definition of recycle E60 (17-07)

Hi Mr. Scott,

Thank you again for your patience, your email of October 8, 2017, requesting EPA's definition of recycling be more consistent with ASTM's definition as well as the follow up email with additional information. EPA's "no" vote on the ASTM ballot to change the definition of recycling was based on our standard definition of recycling in the context of municipal solid waste (MSW) which reads as follows:

***" Recycling is a series of activities that includes collecting used, reused or unused items that would otherwise be considered waste; sorting and processing the recyclable products into raw materials; and remanufacturing the recycled raw materials into new products. Consumers provide the last link in recycling by purchasing products made from recycled content ."***

This definition refers to the **mechanical** process of recycling, including sorting and processing materials such as aluminum, paper, cardboard, plastics, textiles and glass into products. The intent of this definition is to reuse a specific material and manufacture it into a new product, which has similar physical characteristics of the original material. For example, aluminum cans are *recycled* into new aluminum cans or other products that use aluminum, paper is *recycled* into new products that use paper fibers and the steel from auto bodies is *recycled* into new products that use steel.

Conversion of materials to fuel does not fit the definition of recycling; however, this process does fit EPA's definition of energy recovery, which is as follows:

***Energy recovery from waste is the conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolysis, anaerobic digestion, and landfill gas (LFG) recovery. Converting non-recyclable waste materials into heat, electricity, or fuel generates a renewable energy source and reduces carbon emissions by offsetting the need for energy from fossil sources and reduces methane generation from landfills.***

EPA recognizes the benefits of converting fats, oils and greases to biofuel and encourages these activities as they are consistent with the goals of our Sustainable Materials Management (SMM) program. In fact, EPA calls out these benefits in the food management hierarchy under industrial uses on our website which reads as follows:

***Fats, oils and grease are collected and converted by local manufacturers into environmentally friendly biodiesel fuel. Biodiesel is an alternative fuel produced from renewable resources such as virgin oils (soybean, canola, palm), waste cooking oil, or other biowaste feedstock. Biodiesel***

***significantly reduces greenhouse gases, sulfur dioxide in air emissions, and asthma-causing soot. Along with creating less pollution, biodiesel is simple to use, biodegradable and nontoxic.***

We also recognize there are new innovative technologies coming into the marketplace daily. We receive many requests like yours and we continue to monitor and evaluate all materials management methods as new information and data becomes available, including the review of our definitions. Because of the variations and nuances of these technologies, they require careful, tedious review to ensure any modifications to our policies and/or definitions do not inadvertently create new challenges for stakeholders. Therefore, regrettably, based on EPA's existing definition of recycling in the context of MSW, our vote must remain "no."

I encourage you to keep in contact with us and share information that will help inform our efforts to provide information that supports efforts like your those of your members to maximize use of our valuable materials. If you have questions or need additional information in the next few days, please contact Ron Vance or Swarupa Ganguli of my staff as I will be on work travel and have limited access to email. I have included them on this email. Or, you may contact me directly and I will respond when I return to the office October 17<sup>th</sup>.

Thank you again.

Cheryl T Coleman, Director  
Resource Conservation and Sustainability Division  
ORCR/OLEM/EPA  
703-308-8738 O

Ex. 6 Personal Privacy (PP)

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